Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of:	)	
Wireless Broadband Policies	)	GN Docket No. 04-163

REPLY COMMENTS OF EDUCAUSE[1]

EDUCAUSE submits these reply comments to the FCC in the matter of Wireless Broadband Policies, GN Docket No. 04-163, to answer the questions posed by the Commission as they relate to wireless local area networks (WLAN) established on our members' college and university campuses. Answers were compiled through a survey process; 10 schools participated and the full results are attached as Attachment A and Attachment B. An effort was made to get a representative sample of different campuses, large and small, public and private. EDUCAUSE takes pride in the fact that many of our members are early adopters of wireless technology and offers their expertise to help further the advancement of broadband access to all communities. We hope the Wireless Broadband Access Task Force finds our answers of interest.

1. *To what extent are unlicensed wireless broadband networks providing an alternative to other broadband services?*

   On all of the campuses surveyed, wired access is still considered the primary method of connecting to the Internet. Wireless access provides additional convenience and mobility, but does not appear to significantly increase the overall

[1] EDUCAUSE is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. Membership is open to institutions of higher education, corporations serving the higher education information technology market, and other related associations and organizations. EDUCAUSE programs include professional development activities, print and electronic publications, strategic policy initiatives, research, awards for leadership and exemplary practices, and a wealth of online information services. The current membership comprises nearly 1,900 colleges, universities, and education organizations, including more than 180 corporations, and more than 13,000 active member representatives. EDUCAUSE has offices in Boulder, Colorado, and Washington, D.C.

number of Internet users. The initial reason our members added wireless access points varies, but predominantly it is to benefit faculty, staff and students. One institution installed them defensively, in an effort to stop the proliferation of rogue access points. Installation projects first target areas where students congregate, such as conference rooms and common areas. Academic and administrative buildings are then added, often as individual departments request the service and are able to fund the installation. Dorm rooms are the least popular place to install wireless due to the availability of Ethernet connections. All participants forecast an increase in wireless use over time.

2. *Does the Commission currently provide sufficient spectrum suitable for wireless broadband networks?*

   Most feel there is sufficient spectrum available at the present time, but that the proliferation of new wireless devices will challenge this in the near future. The increasing use of VoIP and the integration of cellular and WiFi technology will also have an impact on the balance of licensed versus unlicensed allocations. Cell phone use is particularly dense among student populations.

3. *Has the method for access to spectrum affected the development of wireless technologies and the provisioning of wireless broadband services?*

   The decision to implement wireless access points on campuses began with the development of the 802.11 standard. The availability of unlicensed spectrum combined with inexpensive and innovative products made WLANs financially feasible..

4. *Are there regulatory incentives that would foster continued investment in and deployment of state-of-the-art technologies?*

   The responses indicate that the uncertainty of future spectrum availability does have a dampening effect on plans for implementing new services. The continued focus by the Commission on making more unlicensed spectrum available, allowing flexible use of current licensed spectrum, and facilitating the development of new technologies such as cognitive radios and mesh networks should help alleviate these concerns.

5. *What are the extent and nature of the deployment of wireless broadband services?*

   The survey numbers that describe the extent and nature of campus WLANs for each school are available in Attachment A. In general terms, all campuses surveyed use 802.11b and/or 802.11g equipment. Average total campus area covered by wireless is around 40%, but this varied from 5% at New York University to 100% at the smallest campus. Common areas within libraries and eating areas had the highest coverage; dorm rooms the lowest. Total number of access points deployed ranged from 7 to 404, with an average of 245. Most

schools plan about a 30% increase in access point deployment in the coming year. The ratio of access points to population (students plus faculty and staff) averaged 1/100. For those schools who track it, the average aggregate WLAN traffic is around 5.3 Mbps and 80-90% asymmetric.

Applications most commonly available on the WLAN are the same IP applications available over the wired LAN. Users seem to prefer wireless for convenience and mobility, but primarily for E-mail and web-browsing. Wired connections are still preferred for downloading large files.

6. *What barriers remain to the further deployment of wireless broadband access that the government could address?*

   Most of the barriers, both external and internal to their organizations, are seen to be of a local nature. However, the federal government could be of significant assistance in promoting the development of lower cost WiMAN and WiMAX technologies with increased bandwidth capacity for those entities interested in extending services out into the community. Unlicensed, lower frequency, higher speed bands (900 MHz band and below) are needed for outside, non-line-of-sight WMAN applications. Even for campus installations, the availability of only 3 non-overlapping channels make deployments difficult. A larger channel range would be helpful.

In conclusion, EDUCAUSE strongly supports the Commission's decision to form a Wireless Broadband Access Task Force. Our community is very interested in the continuing development of wireless broadband access both on their campuses and in their surrounding communities. Wireless technologies hold great promise to help fulfill the national goal of affordable and ubiquitous broadband access throughout the United States. We see this goal as critical to our mission of providing a quality learning environment both on campus and through distance learning.

Respectfully submitted,

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Attachments

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